

REMARKS

Claims 1-18 are pending in the application. Claims 1, 9 and 18 are currently amended. Applicant respectfully requests for allowance of all pending claims based on following discussions.

Rejections under 35 USC 103

Claims 1-18 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,244,841 to Schofield et al. (hereinafter referred to as “Schofield”) in view of US Patent No. 5,028,205 to Kapadia et al. (hereinafter referred to as “Kapadia”).

Claim 1, as amended, is directed to a vacuum pump comprising: a pumping mechanism; a drive shaft for driving the pumping mechanism; a gear box connected to the drive shaft for rotating the drive shaft; and pressure control means defining a path to allow fluid to flow from a swept volume of the pumping mechanism to the gear box or vice versa to reduce the pressure difference therebetween, wherein a part of the path is defined by a first conduit extending between the pumping mechanism and the gear box and being separate from and other than a fluid passage along the drive shaft, and, located in said path, a reservoir for collecting oil passing via the fluid passage along the drive shaft from the gear box towards the pumping mechanism so that, in use, pressurised fluid flowing from the pumping mechanism towards the gear box urges oil collected in the reservoir towards the gear box via a second conduit separate from and other than the fluid passage along the drive shaft. It is noted that the underlined language is added to the claim by the current amendment.

The added claim limitation “wherein a part of the path is defined by a first conduit extending between the pumping mechanism and the gear box and being separate

from and other than a fluid passage along the drive shaft" is supported by the

specification of the invention. With reference to FIG. 2 of the present application, "[a] further conduit 18, 27 is provided from the chamber 14 between restrictions 11 and 12 to the swept volume 3." *See, the*

specification, page 4, lines 28-29. Due to the pressure difference between the gear box 4 and swept volume 3, gas may travel between them via the conduit designated by numerals 18 and 27 as shown in FIGs. 4 and 5 of the application.

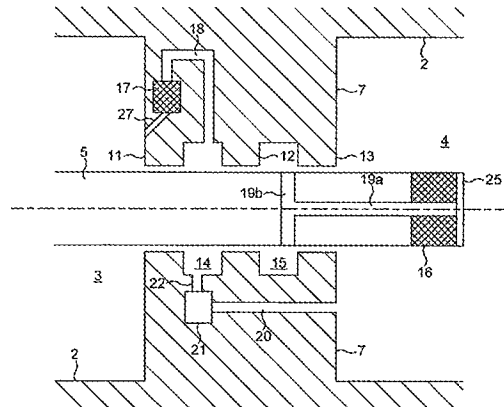


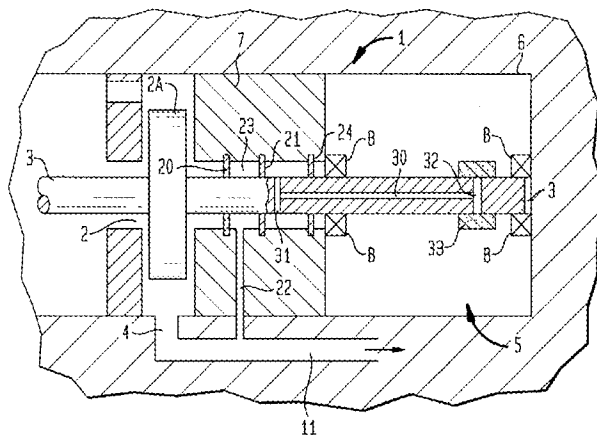
FIG. 2

Schofield does not teach or suggest the claim limitation *"a path to allow fluid to flow from a swept volume of the pumping mechanism to the gear box or vice versa to reduce the pressure difference therebetween."*

In the Final Office Action, the path 22 of Schofield is equated to the path of the claimed invention. *See, paragraph 3.* However, with reference to FIG. 3 of Schofield, the path 22 is connected to an exhaust

line 11, and as a result, a buffer region is formed in space 23 to prevent fluid communication between the gear box 5 and the swept volume (the space on the left to the head plate 7). "The gas pressure buffering means

FIG. 3



can comprise a pressure equilibrium volume or 'plenum' volume." *See, Schofield, col. 2, lines 60-61.* "The plenum volume is generally connected to the gas exhaust line of the pump, thereby ensuring a substantially damped and therefore constant pressure at the shaft seal in order to prevent a significant flow of gas or vapour in to or out of the gearbox." *See, col. 2, lines 61-65.*

Moreover, Schofield does not teach "*wherein a part of the path is defined by a first conduit extending between the pumping mechanism and the gear box and being separate from and other than a fluid passage along the drive shaft*" of the claimed invention. Applicant respectfully submits that Schofield does not teach or suggest a conduit separate from and other than a fluid passage along the drive shaft that enables fluid communication between the gear box and the swept volume.

It would not have been obvious for a person skilled in the art to to modify Schofield by adding conduit 18 to its design. As discussed above, Schofield aims to prevent oil leakage by preventing gas flow between the swept volume and gear box. Adding conduit 18 to its design would promote gas flow between the swept volume and gear box. Thus, Schofield teaches away such modification.

Applicant respectfully submits that Kapadia does not cure the above deficiency of Schofield. Kapadia is cited for its teaching of an oil scavenging mechanism, which is not directly relating to pressure equalization between the gear box and swept volume.

As such, Applicant respectfully submits that claim 1 is patentable over Schofield and Kapadia under 35 USC 103(a). Accordingly, claims 2-18 that depend from independent claim 1 and include all the limitations recited therein are also patentable over the cited prior art references under section 103(a).

CONCLUSION

Applicant has made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee required by the submission to deposit account number 50-4244.

Respectfully submitted,

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